



PATENT

The party in interest is the assignee, LG Phillips LCD Co.

RELATED APPEALS AND INTERFERENCES

The Appellants are unaware of any related appeals or interferences.

STATUS OF THE CLAIMS

This is an appeal from the non-final rejection dated June 18, 2003 of claims 7, 11, and 13-19 (original claims 8, 12, and 14-20). Claim 8 (original claim 9) is also pending in the application.

STATUS OF AMENDMENTS

An amendment under 37 C.F.R. § 1.116 was filed on November 25, 2002 requesting cancellation of original claim 7 (renumbered claim 6) and an amendment to original claims 8-9 (renumbered claims 7-8). A correct copy of appealed claims 7, 11, and 13-19 (original claims 8, 12, and 14-20), including all entered amendments effective on the date of this Amended Appeal Brief, appears in the attached Appendix. On December 11, 2002, an Advisory Action was issued indicating that the amendment filed on November 25, 2002 was entered for the purposes of Appeal. Original claims 7-9, 12, and 14-20 have been renumbered as claims 6-8, 11, and 13-19 in accordance with the Notification of Non-Compliance issued on February 11, 2003.

SUMMARY OF THE INVENTION

Embodiments of the present invention relate to a display apparatus for a notebook computer. [Title] In embodiments a display is pivotably attached to a notebook computer. [Page 20, lines 13-15] The notebook computer may include a driving circuit (i.e. a graphics control board and a panel printed circuit board) that drive drivers of the display, the panel printed circuit board being also referred as a module control board and having a timing control board and a backlight driver. [Page 20, lines 17-21] The display includes the drivers for driving the display. [Page 20, lines 26-29]. A flexible printed circuit film connects the driving circuit in the notebook computer with the drivers in the display. [Page 20, lines 28-32]

In embodiments, since the entire driving circuit is included in the notebook computer, a flexible printed circuit film does not exist between a graphics control board and a timing control board. [Page 21, lines 11-14] Accordingly, because the timing control board is not connected to the graphic control board by a flexible printed circuit film, clock signals will not be affected by noise. [Page 21, lines 11-14] By the clock signals not being affected by noise, an image displayed on a display will not be distorted. [Page 21, lines 14-16] Further, because a timing control board and a backlight unit driver can be located in the panel printed circuit board of the main housing, rather than located in the display, the overall circuit structure may be simplified and the display area may be enlarged. [Page 21, lines 15-25]

ISSUES

1. Whether the Examiner erred in the rejection of claim 7 under 35 U.S.C. § 103(a) by not establishing a *prima facie* case of obviousness because neither the applied prior art nor Godfrey et al. (U.S. Patent No. 5,736,973) disclose a flexible printed circuit film that connects a timing control unit with drivers mounted on a display panel and a module control board having a timing control unit for driving drivers in a panel module and a backlight unit driver for driving a backlight unit in the panel module.
2. Whether the Examiner erred in the rejection of claims 11 and 13-19 under 35 U.S.C. § 103(a) by not establishing a *prima facie* case of obviousness because neither the applied prior art nor Moriconi (U.S. Patent No. 5,546,098) disclose a flexible printed circuit film that connects drivers and a driving circuit and a driving circuit for driving drivers in a display module and a backlight unit.

GROUPING OF THE CLAIMS

Appealed claim 7 forms a single group and stands or falls independently. Appealed claims 11 and 13-19 forms a single group and stand or fall together.

THE ARGUMENT

Issue 1. ***A prima facie* case of obviousness was not established in the rejection of claim 7 under 35 U.S.C. § 103(a) as being unpatentable over "Applicants Admitted Prior Art" (AAPA) in view of Godfrey et al. (U.S. Patent No. 5,736,973).**

To establish a *prima facie* case of obviousness under 35 U.S.C. § 103, three basic criteria must be met. First, the prior art reference (or references when combined) must teach or suggest all the claim limitations. Second, there must be some suggestion or motivation in the references themselves to modify the reference or to combine reference teachings. Third, there must be a reasonable expectation of success for the modification or combination of references.

The teaching or suggestion to make the modification or combination of prior art and the reasonable expectation of success must both be found in the prior art, and not based on Applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). There must be particular findings as to the specific understanding or principle within the knowledge of a skilled artisan that would have motivated one with no knowledge to the claimed invention to combine or modify references. *In re Kotzab*, 217 F.3d 1365, 55 U.S.P.Q.2d 1313 (Fed. Cir. 2000).

Conclusory statements cannot be relied up for particular combinations of prior art and specific claims. *In re Lee*, 277 F.3d 1338, 61 U.S.P.Q.2d 1430 (Fed. Cir. 2002).

Claim 7 recites a display apparatus comprising a panel module and a module control board. The panel module includes drivers mounted on a display panel that drives a pixel matrix. The module control board has a timing control unit for driving the drivers and a back light unit driver for driving the back light unit of the panel module. The apparatus further comprises a first connecting device that connects the timing control unit with the drivers. The first connecting device includes a flexible printed circuit film.

The disclosure in the present application in the "Description of the Prior Art" section of the present application does not disclose a first connecting device, including a flexible printed circuit film, connecting a timing control unit and drivers. Although this disclosure does show flexible printed circuit film 11 and 17, neither of these films connect a timing control unit to a driver. Further, this disclosure does not show a module control board having a timing control unit for driving drivers and a back light unit driver for driving a back light unit of a panel module. On page 2 of the non-final Office action mailed June 18, 2003, it is stated that "...AAPA discloses everything with the exception that the timing control unit and backlight driver is integrated into a printed circuit board..."

Godfrey et al. relates to an integrated backlight display system for a personal digital system. However, unlike the recitations of claim 7, Godfrey et al. does not disclose a first connecting device, including a flexible printed circuit film, that connects a timing control unit with drivers. Further, this disclosure does not show a module control board having a timing

control unit for driving drivers and a back light unit driver for driving a back light unit of a panel module.

Godfrey et al. discloses in Figure 3 and the accompanying description in column 4, lines 65-67 a “ . . . backlight driver circuit, generally referenced at 22, is constructed on a conventional printed circuit board [PCB] 24.” Additionally, Figure 6 and the accompanying description in column 6 describe backlight driver circuit 22. It is disclosed that backlight circuit 22 includes an oscillator. In column 6, lines 50-53, is it disclosed that “[a]n oscillator 64 supplies switching signals 66 on conductors 68 and 70 to the bridge driver 56 to control the frequency of the AC waveform 58 applied to the electroluminescent film 36.” However, the oscillator is not a timing control unit for driving drivers, as recited in claim 7.

Accordingly, neither AAPA nor Godfrey et al. disclose, alone or in combination, a first connecting device, including a flexible printed circuit film, that connects a timing control unit and drivers. Further, neither AAPA nor Godfrey et al. disclose, alone or in combination, a module control board having a timing control unit for driving the drivers and a back light unit driver for driving the back light unit of the panel module. At least for these reasons, a *prima facie* case of obviousness has not been established in the rejection of claim 7 under 35 U.S.C. § 103(a).

The Appellants respectfully submit that the disclosure of Godfrey et al. does not disclose the requisite suggestion or motivation to be modified or combined to teach or suggest the recitations of claim 7. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). On page 3, lines 1-3 of the non-final Office Action the Examiner merely states that “[i]t would have been

obvious for one of ordinary skill in the art to provide the printed circuit board of Godfrey et al. in the device of the AAPA because it would provide a compact and space efficient circuit for the system.” However, the Examiner offers no motivational statements disclosed in the cited prior art reference that would have motivated one with no knowledge to the claimed invention to combine or modify references to teach a flexible printed circuit film connecting a timing control unit and drivers. *In re Kotzab*, 217 F.3d 1365, 55 U.S.P.Q.2d 1313 (Fed. Cir. 2000). At least for this reason, a *prima facie* case of obviousness has not been established in the rejection of claim 7 under 35 U.S.C. § 103(a).

Issue 2. **A *prima facie* case of obviousness was not established in the rejection of claims 11 and 13-19 under 35 U.S.C. § 103(a) as being unpatentable over "Applicants Admitted Prior Art" (AAPA) in view of Moriconi (U.S. Patent No. 5,546,098).**

Claims 11 and 13-19 recite a notebook computer comprising a display module and a body module. The display module comprises drivers that drive a display device. The body module comprises a main printed circuit board and a driving circuit mounted on the main printed circuit board that drives the drivers in the display module. The driving circuit is a module control board. The module control board also drives a back light unit. That is, the module control board drives the back light unit as well as the drivers in the display module. The

notebook computer comprises a connecting circuit comprising a flexible printed circuit film that connects the drivers and the driving circuit.

The disclosure in the present application in the "Description of the Prior Art" section of the present application does not disclose a connecting circuit comprising a flexible printed circuit film that connects drivers and a driving circuit. Although this disclosure does show flexible printed circuit film 11 and 17, neither of these films connect a driving circuit to drivers. Further, this disclosure does not show a module control board that drives drivers in the display module and a back light unit.

Moriconi relates to a removable computer display interface. However, unlike the recitations of claims 11 and 13-19, neither Moriconi does not disclose a flexible printed circuit film that connects drivers and a driving circuit. Further, Moriconi does not disclose a module control board that drives drivers in the display module and a back light unit.

Accordingly, neither AAPA nor Moriconi disclose, alone or in combination, a flexible printed circuit film that connects drivers and a driving circuit. Further, neither AAPA nor Moriconi disclose, alone or in combination, a module control board that drives drivers in the display module and a back light unit. At least for these reasons, a *prima facie* case of obviousness has not been established in the rejection of claims 11 and 13-19 under 35 U.S.C. § 103(a).

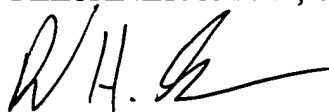
The Appellants respectfully submit that the disclosure of Moriconi does not disclose the requisite suggestion or motivation for modification or combination to teach or suggest the recitations of claims 11 and 13-19. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

The Examiner offers no motivational statements related to the recitation of a flexible printed circuit film in claims 11 and 13-19. At least for these reason, a *prima facie* case of obviousness has not been established in the rejection of claims 11 and 13-19 under 35 U.S.C. § 103(a).

CONCLUSION

In accordance with the arguments set forth above, the Appellants respectfully request the honorable Board of Appeals and Interferences overturn the rejections of claims 7, 11, and 13-19 erroneously made by the Examiner under 35 U.S.C. § 103(a). The Appellants further respectfully request the honorable Board of Appeals and Interferences of the U.S. Patent and Trademark Office to allow claim 8 (original claim 9) because it depends from claim 7 (original claim 8).

Respectfully submitted,
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APPENDIX

7. A display apparatus for a notebook computer having a system body with a main printed circuit board, comprising:

a panel module including a display panel and a back light unit for irradiating to the display panel, said display panel having a pixel matrix that displays a picture information processed by the main printed circuit board, said panel module further including drivers mounted on the display panel that drive the pixel matrix;

a module control board having a timing control unit for driving the drivers and a back light unit driver for driving the back light unit of the panel module;

a first connecting device that connects the timing control unit and back light unit driver of the module control board with the drivers and the back light unit of the panel module, wherein said first connecting device includes a flexible printed circuit film; and

a second connecting device that connects the main printed circuit board with the module control board to provide signals from the main printed circuit board to the module control board.

11. A notebook computer, comprising:

a display module, wherein the display module comprises,

a display device that displays data, and

drivers mounted in the display module that drive the display device;

a body module, wherein the body module comprises,
a main printed circuit board that processes the data for the display device, and
a driving circuit mounted on the main printed circuit board that drives the drivers in the display module; and
a connecting circuit that connects the drivers and a back light unit with the driving circuit, wherein said connecting circuit comprises,
a flexible printed circuit film that connects between the drivers and the driving circuit, and
a conductive line that connects between the driving circuit and the back light unit, wherein the display module further comprises the back light unit that irradiates the display device, and wherein the driving circuit is a module control board mounted on the main printed circuit board, and wherein the module control board drives the back light unit.

13. The notebook computer of claim 11, wherein the conductive line connects the back light unit with the module control board.

14. The notebook computer of claim 11, wherein the driving circuit includes a timing control circuit and forms a package.

15. The notebook computer of claim 14, wherein the driving circuit comprises:
a circuit board mounting circuit elements;
a molding material that packages the circuit board with the circuit elements;
and
5 a plurality of leads coupled to the circuit board through the molding material..
16. The notebook computer of claim 11, wherein the driving circuit is formed in a circuit card.
17. The notebook computer of claim 16, wherein the driving circuit comprises:
a card;
a plurality of circuit elements mounted on the card; and
a plurality of slot contacts being formed on the card.
18. The notebook computer of claim 11, wherein the body module comprises a data entry device, wherein the data entry device is a keyboard, wherein the display module is rotatably coupled to the body module to move between at least an open position and a closed position, wherein the display device comprises a pixel matrix having a plurality of pixel cells that use row and column lines for selection, and wherein the drivers comprise a plurality of row drivers and a plurality of column drivers.

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19. The notebook computer of claim 11, wherein the display module has a reduced thickness.